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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,744	09/22/2003	Charles Edwan Sumner JR.	80040	3867

7590

07/12/2005

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EXAMINER

OH, TAYLOR V

ART UNIT

PAPER NUMBER

1625

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/667,744

Applicant(s)

SUMNER ET AL.

Examiner

Taylor Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-27 and 32-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-27 and 32-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Final Rejection***

**The Status of Claims**

Claims 20-27, and 32-38 are pending.

Claims 20-27, and 32-38 have been rejected.

**Claim Rejections-35 USC 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of Claims 14, 20 ,21 under 35 U.S.C. 112, first paragraph, has been withdrawn due to the cancellation of the claim and the modification of the claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claims 1-31 under 35 U.S.C. 112, second paragraph, has been withdrawn due to the modification of the claims.

**Claim Rejections-35 USC 102**

I. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The rejection of Claims 1-4 and 7-9 under 35 U.S.C. 102(b) as being anticipated clearly by Zeitlin et al (U.S. 5,095,146) has been withdrawn due to the cancellation of the claims.

The rejection of Claims 29 and 31 under 35 U.S.C. 102(b) as being anticipated clearly by Zeitlin et al (U.S. 5,095,146) has been withdrawn due to the cancellation of the claims.

The rejection of Claim 30 under 35 U.S.C. 102(b) as being anticipated clearly by Scott et al (U.S. 4,158,738) has been withdrawn due to the cancellation of the claim.

**Claim Rejections-35 USC 103**

1. Applicants' argument filed 3/28/05 have been fully considered but they are not persuasive.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**The rejection of Claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over Scott et al (U.S. 4,158,738) in view of Zeitlin et al (U.S. 5,095,146) has been withdrawn.**

The rejection of Claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over Scott et al (U.S. 4,158,738) in view of Zeitlin et al (U.S. 5,095,146) has been withdrawn due to the cancellation of the claims.

**The rejection of Claims 20-27, and 32-38 under 35 U.S.C. 103(a) as being unpatentable over Scott et al (U.S. 4,158,738) in view of Zeitlin et al (U.S. 5,095,146) and D.H. Meyer (U.S. 3,584,039).**

The rejection of Claims 20-27, and 32-38 under 35 U.S.C. 103(a) as being unpatentable over Scott et al (U.S. 4,158,738) in view of Zeitlin et al (U.S. 5,095,146) and D.H. Meyer (U.S. 3,584,039) is maintained for the reasons of the record on 11/29/04.

### **Applicants' Argument**

2. Applicants argue the following issues:

- a. The combination of references does not teach step (a) and step (b) in claim 20 in the followings: "(a) removing in a solid-liquid displacement impurities from a crude carboxylic acid slurry composition to form a slurry composition; wherein said crude carboxylic acid slurry composition comprises at least one carboxylic acid; wherein there is less than 5 % by weight terephthalic acid and isophthalic acid in said crude carboxylic acid slurry composition; wherein said impurities comprises 4-carboxybenzaldehyde, trimellitic acid, or 2,6 -dicarboxyfluorenone; (b) oxidizing said slurry composition in a staged oxidation zone to form a staged oxidation composition; wherein said oxidizing is conducted at a temperature between 190 and 280 °C".
- b. Zetlin discloses adding water to a crystallizer, but not a solid-liquid displace zone between the primary and secondary oxidizer.
- c. Scott et al discloses a TPA process and specifically mentions a low temperature centrifuge process.
- d. None of the prior art disclose details about the solid-liquid displacement zone of the staged oxidations.

The applicants' argument have been noted, but these arguments are not persuasive.

First, with respect to the first argument, the Examiner has noted applicants' argument. However, Scott et al does disclose that cooled slurry can be directed to centrifuge (see col. 3, lines 54) in order to remove the impurities. Regarding the minor percentage of terephthalic acid and isophthalic acid present in the slurry composition, the prior art are silent. However, the limitation of a process with respect to ranges of pH, time and concentration does not impart patentability to a process when such values are those which would be determined by one of ordinary skill in the art in achieving optimum operation of the process. Concentration is well understood by those of ordinary skill in the art to be a result-effective variable, especially when attempting to control selectivity in a chemical process. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to adjust the concentration of terephthalic acid and isophthalic acid to the claimed concentration in the slurry composition by routine experimentation in order to control the selectivity of the process.

Regarding the claimed oxidizing temperature of from 190 to 280 °C, the Scott et al does indicate that the oxidation temperature must be maintained at at least 210 °C (see col. 4, lines 31-32). Also, it is possible to undergo the post oxidation treatment in order to reduce further the undesirable impurities in both the terephthalic acid and the mother liquor (see col. 8, lines 7-10). Therefore, the prior art is relevant to the claimed invention.

Second, with respect to the second argument, the Examiner has noted applicants' argument. However, the primary reference, Scott et al, does indicate that cooled slurry can be directed to centrifuge (see col. 3, lines 54) in order to remove the impurities. Furthermore, it is possible to undergo the post oxidation treatment after the primary oxidation process in order to reduce further the undesirable impurities in both the terephthalic acid and the mother liquor (see col. 8, lines 7-10). Therefore, the Scott et al prior art is still relevant to the claimed invention.

Third, with respect to the third argument, the Examiner has noted applicants' argument. However, the secondary prior art, Zeitlin et al, expressly teaches that the slurry produced in each stirred zone is charged continuously to the centrifuge and in all operations, the centrifuge and the last stirred zone are at the temperature of 149° C and pressure of 67 psig. (see col. 6, lines 51-59). In addition, the reference indicates that small quantities of water added to one or more crystallizers can have a significant effect on the reduction of impurities in the crude terephthalic acid (see col. 3, lines 36-38). Therefore, applicants' argument is irrelevant to the issue of the claimed invention.

Fourth, with respect to the fourth argument, the Examiner has noted applicants' argument. However, the combined prior art do teach the claimed the solid-liquid displacement zone of the staged oxidations. The primary reference, Scott et al, does indicate that cooled slurry can be directed to centrifuge (see col. 3, lines 54) in order to remove the impurities. Furthermore, it is possible to undergo the post oxidation



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treatment after the primary oxidation process in order to reduce further the undesirable impurities in both the terephthalic acid and the mother liquor (see col. 8, lines 7-10).

Similarly, the secondary prior art, Zeitlin et al, expressly teaches that the slurry produced in each stirred zone is charged continuously to the centrifuge and in all operations, the centrifuge and the last stirred zone are at the temperature of 149° C and pressure of 67 psig. (see col. 6, lines 51-59). Therefore, the combined prior art are still relevant to the claimed invention.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

\*\*\* Taylor Victor Oh  
7/8/05

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PRIMARY EXAMINER, Acting SPE  
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